

ENVIRONMENTAL INDICATOR (EI) RCRIS CODE (CA725)

Current Human Exposures Under Control

Facility Name: NORTHWEST INDUSTRIES (NWI)
Facility Address: 125 34th Avenue, SW., Albany, OR 97321
Facility EPA ID #: ORD 009020835

1. Has **all** available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

- If yes** - check here and continue with #2 below.
- If no** - re-evaluate existing data, or
- If data not available** skip to #6 and enter "IN" (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Current Human Exposures Under Control" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Current Human Exposures Under Control" EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

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2. Are groundwater, soil, surface water, sediments, or air **media** known or reasonably suspected to be **“contaminated”**¹ above appropriately protective risk-based “levels” (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

<u>“Contaminated” Media</u>	<u>Yes</u>	<u>No</u>	<u>?</u>	<u>Rationale / Key Contaminants</u>
Groundwater	✓			TCE
Air (indoors)		✓		
Soil (surface, e.g., <2 ft)	✓			TCE
Surface Water		✓		
Sediment		✓		
Soil (subsurface e.g., >2 ft)		✓		TCE

- If no** (for all media) - skip to #6, and enter “YE,” status code after providing or citing appropriate “levels,” and referencing sufficient supporting documentation demonstrating that these “levels” are not exceeded.
- If yes** (for any media) - continue after identifying key contaminants in each “contaminated” medium, citing appropriate “levels” (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation.
- If unknown** (for any media) - skip to #6 and enter “IN” status code.

Rationale and Reference(s):

Northwest Industries (NWI) is a specialty-metals fabricating and machining business located on a 4.3-acre lot in Albany, Oregon. The facility has been in continuous operation since 1960. NWI generates waste Trichloroethylene (TCE) during parts cleaning, machining at lathes, and dye-penetrant testing. From 1960 to 1983, waste TCE was discarded to floor drains that discharged to the ground. Since 1983, waste TCE has been managed in accordance with RCRA regulations.

From 1960 to 1963, NWI leased the property. In 1963, NWI purchased the property from Albany Industrial properties. The site is currently owned by the Triumph Group, and operated by northwest Industries, Inc., a wholly-owned subsidiary of the Triumph Group.

Soil and groundwater contamination associated with releases in the vicinity of the former floor drains has been investigated since 1987. DEQ’s Hazardous Waste Program (HWPPD) issued a Stipulated and final Order in August 1989, requiring assessment of soil and groundwater contamination on-site. The HWPPD issued a Mutual Agreement and order in May 1995, requiring on and off-site groundwater characterization and implementation of an on-site interim groundwater remedy. Administrative oversight of the project was transferred to DEQ’s Environmental Cleanup Division (ECD) in 1997. The owner and operator of the property signed an Order on Consent with DEQ in December 1997. The Order requires that a Remedial Investigation and Feasibility Study (RI/FS) be completed in accordance with a specified Scope of Work.

RCRA Closure and Post-Closure. In 1987, subsurface soils (2 to 5 feet below ground surface [bgs]) near the building’s northwest corner, along a drain pipe connected to interior floor drains, were sampled for Volatile Organic Compounds (VOCs). TCE was detected at concentrations up to 200 mg/kg.

The drainpipe was removed, and shallow soil (2 to 5 feet bgs) was excavated and stockpiled along the former drainline. Additional investigation was conducted in this area through 1990. The results supported a determination by DEQ that the stockpiled soils need not be managed as hazardous waste (DEQ 1995), and that residual VOC concentrations did not present an unacceptable risk to human health by direct contact and would not leach to groundwater. In December 1995, the drainline area was closed under RCRA with an asphalt concrete cap, to limit infiltration of surface water, in compliance with RCRA closure regulations (EMCON 1996). The cap is approximately 100 feet long by 30 feet wide, and consists of compacted native subgrade, overlain by woven geotextile fabric, four inches of compacted gravel base, and four inches of asphaltic concrete.

Remedial Investigation/Feasibility Study. Characterization of the nature and extent of on-site soil and groundwater contamination was completed in September 1998. Characterization of the nature and extent of off-site groundwater contamination continues at the adjacent Oremet Facility. Since 1987, 31 piezometers, 20 groundwater monitoring wells, and numerous exploratory soil borings, have been installed on and off-site to determine the horizontal and vertical extent of soil and groundwater contamination. In addition, production wells at Oremet and residential wells within 1/2 mile of the site, have been sampled for the presence of VOCs.

Soil. Soil contamination is confined to the subsurface in the vicinity of the floor drains and former drainline in, and adjacent to, the northwest corner of the NWI building. TCE and other VOCs have been detected at concentrations up to 200 mg/kg in shallow soils (0 to 5 feet bgs) and up to 164,000 mg/kg in deeper subsurface soils (5 to 20 feet bgs).

Groundwater. TCE has been detected in on-site monitoring wells installed in the first encountered water-bearing zone, the Upper silt (approx. 10 to 20 feet bgs), at concentrations up to 850 µg/L (MW-2A, September 1991). TCE has been detected in on and off-site monitoring wells in the next underlying water-bearing zone (the upper and lower gravel zones, Zone A/B, approximately 20-60 feet bgs) at concentrations up to 21,000 µg/L (MW-1B, December 1991, March 1992). TCE has been detected off-site but not on-site, in Zone C (approx. 100 to 140 feet bgs) at concentrations up to 74 µg/L (Oremet production well No. 10, December 2000). TCE has not been detected at greater depths. The on-site contaminant plume is degrading and is being contained by a groundwater pump and treat system. The off-site contaminant plume has migrated from the NWI site toward the Oremet facility in the deeper water-bearing zones. TCE has been detected in Oremet production wells, and it is these production wells that are apparently drawing the contaminant plume toward to the Oremet site, against the regional groundwater flow direction. Oremet is conducting an investigation to determine what impact the production wells have had on the contaminant plume and whether operating practices at Oremet may have contributed to the groundwater contamination detected in their production wells.

Interim Remedial Action. There are two active interim remedial action systems in operation at the NWI site:

1. **Groundwater Pump and Treat System.** In August 1996, a groundwater pump and treat system began operation (EMCON 1996). The system pumps groundwater from seven wells screened in the upper and lower gravel zones underlying the site (Zone A/B), at depths ranging from 18 to 32 feet below ground surface (bgs). Four of the wells are screened in the upper gravel and three are screened in the lower gravel (the zones are separated by a silt layer). The recovered groundwater is treated onsite by a ShallowTray™ air-diffusion system and is discharged to the storm sewer under NPDES permit. The system is still in operation and has been effective at containing on-site contamination.
2. **Soil Vapor Extraction System.** A soil vapor extraction system (SVE) was completed in July 2000, in the northwest corner of the building near the former drainlines, the source area of the TCE contamination detected in soil and groundwater. The system consists of three vapor extraction wells, each completed at a depth of 18 feet bgs within the Upper Silt formation, and screened from 6 to 18 feet bgs.

REFERENCES

- *Order on Consent (DEQ. No. WMCSR-WR-97-15)*, NWI, IKON Office Solutions and DEQ, December 1997.
- *Remedial Investigation Work Plan*, Hart Crowser, April 13, 1998.
- *Remedial Investigation Report*, Hart Crowser, December 22, 1999.
- *Year 2000 Annual ICM and SVE System Performance and Semi-Annual Groundwater Monitoring Report*, Hart Crowser, December 11, 2000.
- *Beneficial Water Use Determination*, Hart Crowser, December 15, 2000.
- *Baseline Risk Assessment*, Hart Crowser, March 21, 2001.

Footnotes:

¹. "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based "levels" (for the media, that identify risks within the acceptable risk range).

². Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

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3. Are there **complete pathways** between “contamination” and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table

Potential **Human Receptors** (Under Current Conditions)

“Contaminated” Media	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food ³
Groundwater		✓		✓			
Air (indoors)		✓					
Soil (surface, e.g., <2 ft)		✓		✓			

Instructions for Summary Exposure Pathway Evaluation Table:

- Strike-out specific Media including Human Receptors’ spaces for Media which are not “contaminated”) as identified in #2 above.
- Enter “yes” or “no” for potential “completeness” under each “Contaminated” Media -- Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations some potential “Contaminated” Media - Human Receptor combinations (Pathways) do not have check spaces (“___”). While these combinations may not be probable in most situations they may be possible in some settings and should be added as necessary.

- If no** (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter “YE” status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways).
- If yes** (pathways are complete for any “Contaminated” Media - Human Receptor combination) - continue after providing supporting explanation.
- If unknown** (for any “Contaminated” Media - Human Receptor combination) - skip to #6 and enter “IN” status code

Rationale and Reference(s):

The primary potential exposure routes determined by the December 15, 2000, Baseline Risk Assessment are as follows:

- Incidental ingestion of on-site soil (industrial and utility workers).
- Direct contact with on-site soil (industrial and utility workers).
- Inhalation of volatiles from subsurface soil and or shallow groundwater (indoor industrial workers).
- Inhalation of volatiles from subsurface soil and or shallow groundwater (outdoor industrial workers).
- Direct contract with groundwater (utility workers).

Footnotes:

³ *Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.)*

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4. Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **“significant”**⁴ (i.e., potentially “unacceptable” because exposures can be reasonably expected to be: (1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable “levels” (used to identify the “contamination”); or (2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable “levels”) could result in greater than acceptable risks)?
- If no** (exposures can not be reasonably expected to be significant (i.e., potentially “unacceptable”) for any complete exposure pathway) - skip to #6 and enter “YE” status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to “contamination” (identified in #3) are not expected to be “significant.”
- If yes** (exposures could be reasonably expected to be “significant” (i.e., potentially “unacceptable”) for any complete exposure pathway) - continue after providing a description (of each potentially “unacceptable” exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to “contamination” (identified in #3) are not expected to be “significant.”
- If unknown** (for any complete pathway) - skip to #6 and enter “IN” status code

Rationale and Reference(s):

Cumulative exposures to contaminants by on- and off-site industrial workers and on-site utility workers were evaluated in the *Baseline Risk Assessment* (Hart Crowser, March 2001). The cumulative reasonable maximum exposure (RME) excess lifetime cancer risk for the current and future on-site industrial work is estimated to be 2×10^{-5} . This slightly exceeds the OAR 340-122 acceptable level of 1×10^{-5} for cumulative carcinogenic risk. The primary exposure pathway is indoor air inhalation [risk = 2×10^{-5}]. The primary contaminant of concern is TCE [risk = 2×10^{-5}]. The individual compound risk estimate for TCE exceeds the acceptable risk level of 1×10^{-6} for individual carcinogens for the exposure to indoor and outdoor exposure air pathways.

The estimated risk to the current and future on-site industrial worker is only slightly above the acceptable risk level. This risk is likely overestimated and is not considered significant because data sets were conservatively chosen, and may not represent actual current or future exposure conditions. The data sets included data collected as far back as 1987 and 1994, for soil and groundwater respectively. Contaminants may have degraded by natural processes. They have also undoubtedly been reduced since the groundwater pump and treat and the soil vapor extraction systems were activated.

No other RME, for excess lifetime cancer risk or adverse impact, exceeded acceptable risk levels. The results of a Level 1 Scoping Ecological Risk Assessment (Hart Crowser, March 2001) indicate that there are no complete exposure pathways to ecological receptors.

Footnotes:

- ⁴ *If there is any question on whether the identified exposures are “significant” (i.e., potentially “unacceptable”) consult a human health Risk Assessment specialist with appropriate education, training and experience.*

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5. Can the “significant” **exposures** (identified in #4) be shown to be within **acceptable** limits?
- If yes** (all “significant” exposures have been shown to be within acceptable limits) - continue and enter “YE” after summarizing and referencing documentation justifying why all “significant” exposures to “contamination” are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).
 - If no** (there are current exposures that can be reasonably expected to be “unacceptable”)- continue and enter “NO” status code after providing a description of each potentially “unacceptable” exposure.
 - If unknown** (for any potentially “unacceptable” exposure) - continue and enter “IN” status code

Rationale and Reference(s):

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6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

- YE - Yes**, "Current Human Exposures Under Control" has been verified. Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at the **NORTHWEST INDUSTRIES (NWI)** facility, EPA ID **#ORD 009020835**, located at **125 34th Avenue, SW., Albany, OR 97321** under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.
- NO** - "Current Human Exposures" are NOT "Under Control."
- IN** - More information is needed to make a determination.

Completed By:

_____	_____ 5/4/01 _____
(Signature)	(Date)
<u>Barb Puchy</u>	<u>Hazardous Waste Specialist</u>
(Print Name)	(Title)

Supervisor:

_____	_____
(Signature)	(Date)
<u>Dave Rozell</u>	<u>Manager, Hazardous Waste Policy</u>
(Print Name)	<u>and Program Development</u> (Title)

Oregon Department of Environmental Quality
(EPA Region or State)

Locations where References may be found:

DEQ - Eugene DEQ, 1102 Lincoln Street, Suite 210, Eugene

Contact telephone and E-mail numbers:

<u>MARILYN DANIEL</u>	<u>541-686-7838 Ext. 239</u>	<u>daniel.marilyn@deq.state.or.us</u>
(Name)	(Phone Number)	(E-Mail)

FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.

ENVIRONMENTAL INDICATOR (EI) RCRIS CODE (CA750)**Migration of Contaminated Groundwater Under Control**

Facility Name: NORTHWEST INDUSTRIES (NWI)
Facility Address: 125 34th Avenue, SW., Albany, OR 97331
Facility EPA ID #: ORD 009020835

1. Has **all** available relevant/significant information on known and reasonably suspected releases to the groundwater media, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

- If yes** - check here and continue with #2 below.
- If no** - re-evaluate existing data, or
- If data are not available**, skip to #8 and enter "IN" (more information needed) status code.

BACKGROUND**Definition of Environmental Indicators (for the RCRA Corrective Action)**

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Migration of Contaminated Groundwater Under Control" EI

A positive "Migration of Contaminated Groundwater Under Control" EI determination ("YE" status code) indicates that the migration of "contaminated" groundwater has stabilized, and that monitoring will be conducted to confirm that contaminated groundwater remains within the original "area of contaminated groundwater" (for all groundwater "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Migration of Contaminated Groundwater Under Control" EI pertains ONLY to the physical migration (i.e., further spread) of contaminated ground water and contaminants within groundwater (e.g., non-aqueous phase liquids or NAPLs). Achieving this EI does not substitute for achieving other stabilization or final remedy requirements and expectations associated with sources of contamination and the need to restore, wherever practicable, contaminated groundwater to be suitable for its designated current and future uses.

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

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2. Is **groundwater** known or reasonably suspected to be “contaminated”¹ above appropriately protective “levels” (i.e., applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action, anywhere at, or from, the facility?

- If yes** - continue after identifying key contaminants, citing appropriate “levels,” and referencing supporting documentation.
- If no** - skip to #8 and enter “YE” status code, after citing appropriate “levels,” and referencing supporting documentation to demonstrate that groundwater is not “contaminated.”
- If unknown** - skip to #8 and enter “IN” status code.

Rationale and Reference(s):

The primary contaminants of concern are VOCs, particularly TCE. Soil and groundwater investigations have been conducted at the site under DEQ orders since 1989 (Stipulated and Final Order, August 1989; Mutual Agreement Order, May 1995; and Order on Consent, December 1997). A network of over 25 on- and off-site wells is being used to define the nature and extent of the groundwater contaminant plume.

- The highest concentration of TCE detected in on-site monitoring wells installed the Upper Silt is 850 µg/L (MW-2A, September 1991).
- The highest concentration of TCE detected in on-site monitoring wells installed in the upper and lower gravel zones (Zone A/B) is 21,000 µg/L (MW1-B, December 1991, March 1992).
- The highest concentration of TCE detected in off-site wells installed in Zone C is 74 µg/L (Oremet production well #10, December 2000).

The nature and extent of the on-site plume is fully characterized. The off-site plume is still under investigation. The VOC contamination appears to have moved from the shallow to the deeper zones as it migrates toward the Oremet site. It also appears that the groundwater pump and treat system installed along the NWI property line has successfully contained the plume on-site, and there is no longer a significant contribution to the off-site contamination.

The only surface water with the boundaries of the locality of the facility (the area in which contamination, if uncontrolled, may reasonably be expected to migrate) is the Albany-Santiam Canal. Canal level and groundwater monitoring have been conducted at the site, since September 1990. These data have consistently shown that the canal water level is above the groundwater level.

Footnotes:

¹ “Contamination” and “contaminated” describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriate “levels” (appropriate for the protection of the groundwater resource and its beneficial uses).

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3. Has the **migration** of contaminated groundwater **stabilized** (such that contaminated groundwater is expected to remain within “existing area of contaminated groundwater”² as defined by the monitoring locations designated at the time of this determination)?
- If yes**, continue, after presenting or referencing the physical evidence (e.g., groundwater sampling/measurement/migration barrier data) and rationale why contaminated groundwater is expected to remain within the (horizontal or vertical) dimensions of the “existing area of groundwater contamination”²).
- If no**, (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the “existing area of groundwater contamination”²) - skip to #8 and enter “NO” status code, after providing an explanation.
- If unknown** - skip to #8 and enter “IN” status code.

Rationale and Reference(s):

The interim corrective measures included installing a groundwater pump and treat system which has been in operation since August 1996.

The system consists of seven groundwater recovery wells and an aboveground water treatment system. The groundwater recovery system operates primarily to control groundwater flow beneath the site and to minimize off-site migration of dissolved VOCs.

The December 31, 1999, Remedial Investigation Reports assessed effectiveness of the groundwater recovery system and concluded that the system is capturing the contaminant plume in both hydrogeologic units of concern. (See also the December 11, 2000, Annual ICM and SVE System Performance and Semi-Annual Groundwater Monitoring Report.)

Footnotes:

² “Existing area of contaminated groundwater” is an area (with horizontal and vertical dimensions) that has been verifiably demonstrated to contain all relevant groundwater contamination for this determination, and is defined by designated (monitoring) locations proximate to the outer perimeter of “contamination” that can and will be sampled/tested in the future to physically verify that all “contaminated” groundwater remains within this area, and that the further migration of “contaminated” groundwater is not occurring. Reasonable allowances in the proximity of the monitoring locations are permissible to incorporate formal remedy decisions (i.e., including public participation) allowing a limited area for natural attenuation.

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4. Does "contaminated" groundwater **discharge** into **surface water** bodies?

- If yes** - continue after identifying potentially affected surface water bodies.
- If no** - skip to #7 (and enter a "YE" status code in #8, if #7 = yes) after providing an explanation and/or referencing documentation supporting that groundwater "contamination" does not enter surface water bodies.
- If unknown** - skip to #8 and enter "IN" status code.

Rationale and Reference(s):

The only surface water within the lateral boundaries of the locality of the facility is the Albany-Santiam Canal. Canal level and groundwater monitoring have been conducted at the site since September 1990. These data have consistently shown that the canal water level is above the groundwater level. Therefore, there are no affected surface water bodies within the locality of the facility (See Section 6.4, December 31, 1999, "Remedial Investigation Report" prepared by Hart Crouser, Inc.).

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5. Is the **discharge** of “contaminated” groundwater into surface water likely to be “**insignificant**” (i.e., the maximum concentration³ of each contaminant discharging into surface water is less than 10 times their appropriate groundwater “level,” and there are no other conditions (e.g., the nature, and number, of discharging contaminants, or environmental setting), which significantly increase the potential for unacceptable impacts to surface water, sediments, or ecosystems at these concentrations)?

If yes - skip to #7 (and enter “YE” status code in #8 if #7 = yes), after documenting: (1) the maximum known or reasonably suspected concentration³ of key contaminants discharged above their groundwater “level,” the value of the appropriate “level(s),” and if there is evidence that the concentrations are increasing; and (2) provide a statement of professional judgement/explanation (or reference documentation) supporting that the discharge of groundwater contaminants into the surface water is not anticipated to have unacceptable impacts to the receiving surface water, sediments, or ecosystem.

If no - (the discharge of “contaminated” groundwater into surface water is potentially significant) - continue after documenting: (1) the maximum known or reasonably suspected concentration³ of each contaminant discharged above its groundwater “level,” the value of the appropriate “level(s),” and if there is evidence that the concentrations are increasing; and (2) for any contaminants discharging into surface water in concentrations³ greater than 100 times their appropriate groundwater “levels,” the estimated total amount (mass in kg/yr) of each of these contaminants that are being discharged (loaded) into the surface water body (at the time of the determination), and identify if there is evidence that the amount of discharging contaminants is increasing.

If unknown - enter “IN” status code in #8.

Rationale and Reference(s):

Footnotes:

³ *As measured in groundwater prior to entry to the groundwater-surface water/sediment interaction (e.g., hyporheic) zone.*

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6. Can the **discharge** of “contaminated” groundwater into surface water be shown to be “**currently acceptable**” (i.e., not cause impacts to surface water, sediments or ecosystems that should not be allowed to continue until a final remedy decision can be made and implemented⁴)?

If yes - continue after either: (1) identifying the Final Remedy decision incorporating these conditions, or other site-specific criteria (developed for the protection of the site’s surface water, sediments, and ecosystems), and referencing supporting documentation demonstrating that these criteria are not exceeded by the discharging groundwater; OR (2) providing or referencing an interim-assessment,⁵ appropriate to the potential for impact, that shows the discharge of groundwater contaminants into the surface water is (in the opinion of a trained specialists, including ecologist) adequately protective of receiving surface water, sediments, and ecosystems, until such time when a full assessment and final remedy decision can be made. Factors which should be considered in the interim-assessment (where appropriate to help identify the impact associated with discharging groundwater) include: surface water body size, flow, use/classification/habitats and contaminant loading limits, other sources of surface water/sediment contamination, surface water and sediment sample results and comparisons to available and appropriate surface water and sediment “levels,” as well as any other factors, such as effects on ecological receptors (e.g., via bio-assays/benthic surveys or site-specific ecological Risk Assessments), that the overseeing regulatory agency would deem appropriate for making the EI determination.

If no - (the discharge of “contaminated” groundwater can not be shown to be “**currently acceptable**”) - skip to #8 and enter “NO” status code, after documenting the currently unacceptable impacts to the surface water body, sediments, and/or ecosystems.

If unknown - skip to 8 and enter “IN” status code.

Rationale and Reference(s):

Footnotes:

⁴ Note, because areas of inflowing groundwater can be critical habitats (e.g., nurseries or thermal refugia) for many species, appropriate specialist (e.g., ecologist) should be included in management decisions that could eliminate these areas by significantly altering or reversing groundwater flow pathways near surface water bodies.

⁵ The understanding of the impacts of contaminated groundwater discharges into surface water bodies is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration to be reasonably certain that discharges are not causing currently unacceptable impacts to the surface waters, sediments or ecosystems.

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7. Will groundwater **monitoring** / measurement data (and surface water/sediment/ecological data, as necessary) be collected in the future to verify that contaminated groundwater has remained within the horizontal (or vertical, as necessary) dimensions of the “existing area of contaminated groundwater?”

If yes - continue after providing or citing documentation for planned activities or future sampling/measurement events. Specifically identify the well/measurement locations which will be tested in the future to verify the expectation (identified in #3) that groundwater contamination will not be migrating horizontally (or vertically, as necessary) beyond the “existing area of groundwater contamination.”

If no - enter “NO” status code in #8.

If unknown - enter “IN” status code in #8.

Rationale and Reference(s):

The Order dated 12/19/97, requires groundwater monitoring and assessment _____

**Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS Code (CA750)
Page 8**

8. Check the appropriate RCRIS status codes for the Migration of Contaminated Groundwater Under Control EI (event code CA750), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (attach appropriate supporting documentation as well as a map of the facility).
- YE** - Yes, "Migration of Contaminated Groundwater Under Control" has been verified. Based on a review of the information contained in this EI determination, it has been determined that the "Migration of Contaminated Groundwater" is "Under Control" at the **NORTHWEST INDUSTRIES (NWI)** facility, EPA ID #**ORD 009020835**, located at **125 34th Avenue, SW., Albany, OR 97321**. Specifically, this determination indicates that the migration of "contaminated" groundwater is under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the "existing area of contaminated groundwater." This determination will be re-evaluated when the Agency becomes aware of significant changes at the facility.
- NO** - Unacceptable migration of contaminated groundwater is observed or expected.
- IN** - More information is needed to make a determination.

Completed By:

(Signature)

Barb Puchy
(Print Name)

5/4/01
(Date)

Hazardous Waste Specialist
(Title)

Supervisor:

(Signature)

Dave Rozell
(Print Name)

(Date)

Manager, Hazardous Waste Policy
and Program Development (Title)

Oregon Department of Environmental Quality
(EPA Region or State)

Locations where References may be found:

DEQ - Eugene DEQ, 1102 Lincoln Street, Suite 210, Eugene

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